



SEQUENCE LISTING

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<120> NUCLEIC ACID ENCODING DS-CAM PROTEINS AND PRODUCTS
RELATED THERETO

<130> 9002-006

<140> 08/956,991

<141> 1997-10-23

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<160> 11

<170> PatentIn Ver. 2.0

<210> 1

<211> 6604

<212> DNA

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<221> CDS

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1835 1840 1845

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1865 1870 1875

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1900 1905 1910

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 Glu Val Val Phe Ala Ser Thr Thr Gly Thr Leu Val Pro Cys Pro Ala
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 Ala Gly Ile Pro Pro Val Thr Leu Arg Trp Tyr Leu Ala Thr Gly Glu
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 Glu Ile Tyr Asp Val Pro Gly Ile Arg His Val His Pro Asn Gly Thr
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 Leu Gln Ile Phe Pro Phe Pro Pro Ser Ser Phe Ser Thr Leu Ile His
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 Asp Asn Thr Tyr Tyr Cys Thr Ala Glu Asn Pro Ser Gly Lys Ile Arg
 100 105 110
 Ser Gln Asp Val His Ile Lys Ala Val Leu Arg Glu Pro Tyr Thr Val
 115 120 125
 Arg Val Glu Asp Gln Lys Thr Met Arg Gly Asn Val Ala Val Phe Lys
 130 135 140
 Cys Ile Ile Pro Ser Ser Val Glu Ala Tyr Ile Thr Val Val Ser Trp
 145 150 155 160

Glu Lys Asp Thr Val Ser Leu Val Ser Gly Ser Arg Phe Leu Ile Thr
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 Ser Thr Gly Ala Leu Tyr Ile Lys Asp Val Gln Asn Glu Asp Gly Leu
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 Tyr Asn Tyr Arg Cys Ile Thr Arg His Arg Tyr Thr Gly Glu Thr Arg
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 Gln Ser Asn Ser Ala Arg Leu Phe Val Ser Asp Pro Ala Asn Ser Ala
 210 215 220
 Pro Ser Ile Leu Asp Gly Phe Asp His Arg Lys Ala Met Ala Gly Gln
 225 230 235 240
 Arg Val Glu Leu Pro Cys Lys Ala Leu Gly His Pro Glu Pro Asp Tyr
 245 250 255
 Arg Trp Leu Lys Asp Asn Met Pro Leu Glu Leu Ser Gly Arg Phe Gln
 260 265 270
 Lys Thr Val Thr Gly Leu Leu Ile Glu Asn Ile Arg Pro Ser Asp Ser
 275 280 285
 Gly Ser Tyr Val Cys Glu Val Ser Asn Arg Tyr Gly Thr Ala Lys Val
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 Ile Gly Arg Leu Tyr Val Lys Gln Pro Leu Lys Ala Thr Ile Ser Pro
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 Arg Lys Val Lys Ser Ser Val Gly Ser Gln Val Ser Leu Ser Cys Ser
 325 330 335
 Val Thr Gly Thr Glu Asp Gln Glu Leu Ser Trp Tyr Arg Asn Gly Glu
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 Ile Leu Asn Pro Gly Lys Asn Val Arg Ile Thr Gly Ile Asn His Glu
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 Asn Leu Ile Met Asp His Met Val Lys Ser Asp Gly Gly Ala Tyr Gln
 370 375 380
 Cys Phe Val Arg Lys Asp Lys Leu Ser Ala Gln Asp Tyr Val Gln Val
 385 390 395 400
 Val Leu Glu Asp Gly Thr Pro Lys Ile Ile Ser Ala Phe Ser Glu Lys
 405 410 415

Val Val Ser Pro Ala Glu Pro Val Ser Leu Met Cys Asn Val Lys Gly
420 425 430
Thr Pro Leu Pro Thr Ile Thr Trp Thr Leu Asp Asp Asp Pro Ile Leu
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Lys Gly Gly Ser His Arg Ile Ser Gln Met Ile Thr Ser Glu Gly Asn
450 455 460
Val Val Ser Tyr Leu Asn Ile Ser Ser Ser Gln Val Arg Asp Gly Gly
465 470 475 480
Val Tyr Arg Cys Thr Ala Asn Asn Ser Ala Gly Val Val Leu Tyr Gln
485 490 495
Ala Arg Ile Asn Val Arg Gly Pro Ala Ser Ile Arg Pro Met Lys Asn
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Ile Thr Ala Ile Ala Gly Arg Asp Thr Tyr Ile His Cys Arg Val Ile
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Gly Tyr Pro Tyr Tyr Ser Ile Lys Trp Tyr Lys Asn Ser Asn Leu Leu
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Pro Phe Asn His Arg Gln Val Ala Phe Glu Asn Asn Gly Thr Leu Lys
545 550 555 560
Leu Ser Asp Val Gln Lys Glu Val Asp Glu Gly Glu Tyr Thr Cys Asn
565 570 575
Val Leu Val Gln Pro Gln Leu Ser Thr Ser Gln Ser Val His Val Thr
580 585 590
Val Lys Val Pro Pro Phe Ile Gln Pro Phe Glu Phe Pro Arg Phe Ser
595 600 605
Ile Gly Gln Arg Val Phe Ile Pro Cys Val Val Val Ser Gly Asp Leu
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Pro Ile Thr Ile Thr Trp Gln Lys Asp Gly Arg Pro Ile Pro Gly Ser
625 630 635 640
Leu Gly Val Thr Ile Asp Asn Ile Asp Phe Thr Ser Ser Leu Arg Ile
645 650 655
Ser Asn Leu Ser Leu Met His Asn Gly Asn Tyr Thr Cys Ile Ala Arg
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Asn Glu Ala Ala Ala Val Glu His Gln Ser Gln Leu Ile Val Arg Val
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 Pro Pro Lys Phe Val Val Gln Pro Arg Asp Gln Asp Gly Ile Tyr Gly
 690 695 700
 Lys Ala Val Ile Leu Asn Cys Ser Ala Glu Gly Tyr Pro Val Pro Thr
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 Ile Val Trp Lys Phe Ser Lys Gly Ala Gly Val Pro Gln Phe Gln Pro
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 Ile Ala Leu Asn Gly Arg Ile Gln Val Leu Ser Asn Gly Ser Leu Leu
 740 745 750
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 755 760 765
 Ser Asn Asp Val Gly Ala Asp Val Ser Lys Ser Met Tyr Leu Thr Val
 770 775 780
 Lys Ile Pro Ala Met Ile Thr Ser Tyr Pro Asn Thr Thr Leu Ala Thr
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 Cys His Ala Ile Asn Ser Tyr Gly Glu Asp Arg Gly Ile Ile Gln Leu
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 Thr Arg Ala Gly Asp Gly Val Arg Ser Glu Gln Ile Phe Thr Arg Thr
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Lys Glu Asp Val Pro Gly Pro Pro Ala Gly Val Lys Ala Ala Ala Ala
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Ser Ala Ser Met Val Phe Val Ser Trp Leu Pro Pro Leu Lys Leu Asn
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Gly Ile Ile Arg Lys Tyr Thr Val Phe Cys Ser His Pro Tyr Pro Thr
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Val Ile Ser Glu Phe Glu Ala Ser Pro Asp Ser Phe Ser Tyr Arg Ile
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Pro Asn Leu Ser Arg Asn Arg Gln Tyr Ser Val Trp Val Val Ala Val
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Ile Ile Arg Thr Val Lys Ala Glu Asp Ser Gly Tyr Tyr Ser Cys Ile
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Ala Asn Asn Asn Trp Gly Ser Asp Glu Ile Ile Leu Asn Leu Gln Val
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Gln Val Pro Pro Asp Gln Pro Arg Leu Thr Val Ser Lys Thr Thr Ser
 1380 1385 1390

Ser Ser Ile Thr Leu Ser Trp Leu Pro Gly Asp Asn Gly Gly Ser Ser
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Ile Arg Gly Tyr Ile Leu Gln Tyr Ser Glu Asp Asn Ser Glu Gln Trp
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Gly Ser Phe Pro Ile Ser Pro Ser Glu Arg Ser Tyr Arg Leu Glu Asn
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Leu Lys Cys Gly Thr Trp Tyr Lys Phe Thr Leu Thr Ala Gln Asn Gly
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 Lys Glu Pro Gln Phe Ser Lys Glu Gln Glu Leu Phe Ala Ser Ile Asn
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 1685 1690 1695

Gln Lys Ser Leu Thr Val Thr His Thr Val His Tyr Gln Ser Val Ser
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 Ala His Thr Leu Thr Thr Asp Trp Arg Leu Pro Thr Pro Arg Ala Ala
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 Gly Ser Val Asp Lys Glu Ser Asp Ser Tyr Ser Val Ser Pro Ser Gln
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 Asp Thr Asp Arg Ala Arg Ser Ser Met Val Ser Thr Glu Ser Ala Ser
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 825 1830 1835 1840
 Asp Thr Ser Ser Glu Gln Leu Thr Ala Gly Thr Asn Glu Tyr Thr Asp
 1845 1850 1855
 Ser Leu Thr Ser Ser Thr Pro Ser Glu Ser Gly Ile Cys Arg Phe Thr
 1860 1865 1870
 Ala Ser Pro Pro Lys Pro Gln Asp Gly Gly Arg Val Met Asn Met Ala
 1875 1880 1885
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 1890 1895 1900
 Leu Glu Trp Thr Phe Cys
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<212> DNA

<213> Artificial Sequence

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<223> Description of Artificial Sequence:cDNA probe

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caccaggata caggagatgg tcaccagcat cttgagcccc tcgttggtcg tcagcccttc 180
ttcgtttttg acaactgact taatgagtgg aggaattgta ctgccatcgt agttcagcgt 240
agcgaagttg gcctgcttct ccgcgcagcc cgcactgttg cacacccgca tctgcagctc 300
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<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:MboI linker
sequence

<400> 4

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<210> 5

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer

<400> 5

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<210> 6

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer

<400> 6

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<210> 7

<211> 842

<212> DNA

<213> MOUSE

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agacgagaca gagcaactgc gcgagactgt tcgtgtcaga accagcaaac tcagcccatc 780
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842

<210> 8

<211> 898

<212> DNA

<213> MOUSE

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gcgtagatat cacttcctct cccacctcct tgggtggatac agtacggggc actttcaggg 720
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ctcattcctt cctttgacct tgatggccag gtggtgtggg tataagttat atcatggccg 840
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<210> 9

<211> 2173

<212> DNA

<213> MOUSE

<400> 9

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ggccagtggc tttccatctg gattccaggc caagctaaaa atctgttctt gatggccctg 180
cagtttcagc cgttcagctc cagtctgaag ttcccagatg cgaacgggta gatcatagga 240

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 gtggcctgtg agcacagtct caggtgtggt gagaacattc tcgagccagc gagcgttcat 360
 accgcttgga aaacctaaag tgtgggactt ggtataagtt cacccttact gccc aaaatg 420
 gagtaggtcc cggg cgcata agtgaaatca tagaagccaa aaccctgggg aaagaacccc 480
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acg ggg act ctg gtg ccc tgc ccc gca gca ggc atc cct cct gtg act	617
Thr Gly Thr Leu Val Pro Cys Pro Ala Ala Gly Ile Pro Pro Val Thr	
40 45 50 55	
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Leu Arg Trp Tyr Leu Ala Thr Gly Glu Glu Ile Tyr Asp Val Pro Gly	
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Ile Arg His Val His Pro Asn Gly Thr Leu Gln Ile Phe Pro Phe Pro	
75 80 85	
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Pro Ser Ser Phe Ser Thr Leu Ile His Asp Asn Thr Tyr Tyr Cys Thr	
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Ala Glu Asn Pro Ser Gly Lys Ile Arg Ser Gln Asp Val His Ile Lys	
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Ala Val Leu Arg Glu Pro Tyr Thr Val Arg Val Glu Asp Gln Lys Thr	
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Met Arg Gly Asn Val Ala Val Phe Lys Cys Ile Ile Pro Ser Ser Val	
140 145 150	
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Glu Ala Tyr Ile Thr Val Val Ser Trp Glu Lys Asp Thr Val Ser Leu	
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Val Ser Gly Ser Arg Phe Leu Ile Thr Ser Thr Gly Ala Leu Tyr Ile	
170 175 180	
aaa gat gta cag aat gaa gat gga ttg tat aac tac cgc tgc atc acg	1049
Lys Asp Val Gln Asn Glu Asp Gly Leu Tyr Asn Tyr Arg Cys Ile Thr	
185 190 195	
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Arg His Arg Tyr Thr Gly Glu Thr Arg Gln Ser Asn Ser Ala Arg Leu	
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205	210
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Phe Val Ser Asp Pro Ala Asn Ser Ala Pro Ser Ile Leu Asp Gly Phe	
220	230
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Asp His Arg Lys Ala Met Ala Gly Gln Arg Val Glu Leu Pro Cys Lys	
235	245
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gcg ctc ggg cac cct gag cca gat tac cgc tgg ctg aag gac aac atg	1241
Ala Leu Gly His Pro Glu Pro Asp Tyr Arg Trp Leu Lys Asp Asn Met	
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ccc ctg gaa ctt tca ggg agg ttc cag aag acc gtg acg ggg ctg ctc	1289
Pro Leu Glu Leu Ser Gly Arg Phe Gln Lys Thr Val Thr Gly Leu Leu	
265	275
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Ile Glu Asn Ile Arg Pro Ser Asp Ser Gly Ser Tyr Val Cys Glu Val	
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Ser Asn Arg Tyr Gly Thr Ala Lys Val Ile Gly Arg Leu Tyr Val Lys	
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Val Arg Ile Thr Gly Ile Asn His Glu Asn Leu Ile Met Asp His Met	
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Val Lys Ser Asp Gly Gly Ala Tyr Gln Cys Phe Val Arg Lys Asp Lys	
380	390
385	
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Lys Ile Ile Ser Ala Phe Ser Glu Lys Val Val Ser Pro Ala Glu Pro	
410 415 420	
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Val Ser Leu Met Cys Asn Val Lys Gly Thr Pro Leu Pro Thr Ile Thr	
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Trp Thr Leu Asp Asp Asp Pro Ile Leu Lys Gly Gly Ser His Arg Ile	
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Ser Gln Met Ile Thr Ser Glu Gly Asn Val Val Ser Tyr Leu Asn Ile	
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Ser Ser Ser Gln Val Arg Asp Gly Gly Val Tyr Arg Cys Thr Ala Asn	
475 480 485	
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Asn Ser Ala Gly Val Val Leu Tyr Gln Ala Arg Ile Asn Val Arg Gly	
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cct gca agc att cga cca atg aaa aac atc aca gca ata gca gga cgg	2009
Pro Ala Ser Ile Arg Pro Met Lys Asn Ile Thr Ala Ile Ala Gly Arg	
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gac aca tac att cac tgt cgt gtg att ggc tat ccg tat tac tcc att	2057
Asp Thr Tyr Ile His Cys Arg Val Ile Gly Tyr Pro Tyr Tyr Ser Ile	
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Lys Trp Tyr Lys Asn Ser Asn Leu Leu Pro Phe Asn His Arg Gln Val	
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Ala Phe Glu Asn Asn Gly Thr Leu Lys Leu Ser Asp Val Gln Lys Glu	
555 560 565	
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Val Asp Glu Gly Glu Tyr Thr Cys Asn Val Leu Val Gln Pro Gln Leu	
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Ser Thr Ser Gln Ser Val His Val Thr Val Lys Val Pro Pro Phe Ile	
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Gln Pro Phe Glu Phe Pro Arg Phe Ser Ile Gly Gln Arg Val Phe Ile	
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ccc tgt gtt gtg gtc tca ggg gac tta ccc atc acg atc acc tgg cag	2345
Pro Cys Val Val Val Ser Gly Asp Leu Pro Ile Thr Ile Thr Trp Gln	
	620 625 630
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Lys Asp Gly Arg Pro Ile Pro Gly Ser Leu Gly Val Thr Ile Asp Asn	
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Ile Asp Phe Thr Ser Ser Leu Arg Ile Ser Asn Leu Ser Leu Met His	
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Asn Gly Asn Tyr Thr Cys Ile Ala Arg Asn Glu Ala Ala Ala Val Glu	
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His Gln Ser Gln Leu Ile Val Arg Val Pro Pro Lys Phe Val Val Gln	
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Pro Arg Asp Gln Asp Gly Ile Tyr Gly Lys Ala Val Ile Leu Asn Cys	
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Ser Ala Glu Gly Tyr Pro Val Pro Thr Ile Val Trp Lys Phe Ser Lys	
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Gly Ala Gly Val Pro Gln Phe Gln Pro Ile Ala Leu Asn Gly Arg Ile	
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Gln Val Leu Ser Asn Gly Ser Leu Leu Ile Lys His Val Val Glu Glu	
	745 750 755
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Asp Ser Gly Tyr Tyr Leu Cys Lys Val Ser Asn Asp Val Gly Ala Asp	
760	765 770 775
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Val Ser Lys Ser Met Tyr Leu Thr Val Lys Ile Pro Ala Met Ile Thr	
780	785 790
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Ser Tyr Pro Asn Thr Thr Leu Ala Thr Gln Gly Gln Lys Lys Glu Met	
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Ser Cys Thr Ala His Gly Glu Lys Pro Ile Ile Val Arg Trp Glu Lys	
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Glu Asp Arg Ile Ile Asn Pro Glu Met Ala Arg Tyr Leu Val Ser Thr	
825	830 835
aag gag gtg gga gaa gag gtg att tct act ctg cag att ttg cca act	3017
Lys Glu Val Gly Glu Glu Val Ile Ser Thr Leu Gln Ile Leu Pro Thr	
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Val Arg Glu Asp Ser Gly Phe Phe Ser Cys His Ala Ile Asn Ser Tyr	
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875	880 885
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Pro Pro Glu Ile Glu Ile Lys Asp Val Lys Ala Arg Thr Ile Thr Leu	
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Arg Trp Thr Met Gly Phe Asp Gly Asn Ser Pro Ile Thr Gly Tyr Asp	
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aaa gat gtt tcc cct cag ctg aac tcg gcc acc atc att gat atc cac	3305
Lys Asp Val Ser Pro Gln Leu Asn Ser Ala Thr Ile Ile Asp Ile His	
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cct tcc tcc acc tac agc atc cgc atg tac gcc aag aac cgg att ggc	3353
Pro Ser Ser Thr Tyr Ser Ile Arg Met Tyr Ala Lys Asn Arg Ile Gly	
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Lys Ser Glu Pro Ser Asn Glu Leu Thr Ile Thr Ala Asp Glu Ala Ala	
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att atc cgt ggc tac caa ata ggt tac cga gag tac agc act ggg ggt	3545
Ile Ile Arg Gly Tyr Gln Ile Gly Tyr Arg Glu Tyr Ser Thr Gly Gly	
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Asn Phe Gln Phe Asn Ile Ile Ser Val Asp Thr Ser Gly Asp Ser Glu	
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Val Tyr Thr Leu Asp Asn Leu Asn Lys Phe Thr Gln Tyr Gly Leu Val	
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Val Gln Ala Cys Asn Arg Ala Gly Thr Gly Pro Ser Ser Gln Glu Ile	
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Ile Thr Thr Thr Leu Glu Asp Val Pro Ser Tyr Pro Pro Glu Asn Val	
1080 1085 1090 1095	
caa gcc ata gca aca tca cca gaa agc ata tca ata tcc tgg tcc aca	3785
Gln Ala Ile Ala Thr Ser Pro Glu Ser Ile Ser Ile Ser Trp Ser Thr	
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ctt tcc aag gaa gcc ttg aat gga att ctc cag ggg ttc aga gtc att	3833
Leu Ser Lys Glu Ala Leu Asn Gly Ile Leu Gln Gly Phe Arg Val Ile	
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tac tgg gcc aac ctc atg gac gga gag ctg ggt gag att aaa aac atc	3881
Tyr Trp Ala Asn Leu Met Asp Gly Glu Leu Gly Glu Ile Lys Asn Ile	
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acc acc aca cag cct tca ctg gag ctg gac ggg ctg gaa aag tac acc	3929
Thr Thr Thr Gln Pro Ser Leu Glu Leu Asp Gly Leu Glu Lys Tyr Thr	
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Asn Tyr Ser Ile Gln Val Leu Ala Phe Thr Arg Ala Gly Asp Gly Val	
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Arg Ser Glu Gln Ile Phe Thr Arg Thr Lys Glu Asp Val Pro Gly Pro	
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Pro Ala Gly Val Lys Ala Ala Ala Ser Ala Ser Met Val Phe Val	
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Ser Trp Leu Pro Pro Leu Lys Leu Asn Gly Ile Ile Arg Lys Tyr Thr	
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gta ttc tgc tcc cac ccc tat ccc aca gtg atc agc gag ttt gag gcc	4169
Val Phe Cys Ser His Pro Tyr Pro Thr Val Ile Ser Glu Phe Glu Ala	
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Val Leu Pro Cys Lys Ala Val Gly Asp Pro Ser Pro Ala Val Lys Trp	
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Met Lys Asp Ser Asn Gly Thr Pro Ser Leu Val Thr Ile Asp Gly Arg	
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Arg Ser Ile Phe Ser Asn Gly Ser Phe Ile Ile Arg Thr Val Lys Ala	
1340	1345 1350
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Glu Asp Ser Gly Tyr Tyr Ser Cys Ile Ala Asn Asn Asn Trp Gly Ser	
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Arg Leu Thr Val Ser Lys Thr Thr Ser Ser Ser Ile Thr Leu Ser Trp	
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ctc cct gga gac aac ggg ggc agc tct atc aga gga tac ata ctg cag	4697
Leu Pro Gly Asp Asn Gly Gly Ser Ser Ile Arg Gly Tyr Ile Leu Gln	
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Tyr Ser Glu Asp Asn Ser Glu Gln Trp Gly Ser Phe Pro Ile Ser Pro	
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agc gaa cgt tcc tat cgc ttg gaa aat ctc aaa tgt ggg act tgg tat	4793
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Lys Phe Thr Leu Thr Ala Gln Asn Gly Val Gly Pro Gly Arg Ile Ser	
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Ser Leu Ser Lys Ser Tyr Ile Leu Tyr Asp Leu Gln Glu Ala Thr Trp	
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<400> 11

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Glu	Val	Val	Phe	Ala	Ser	Thr	Thr	Gly	Thr	Leu	Val	Pro	Cys	Pro	Ala				
			35					40					45						
Ala	Gly	Ile	Pro	Pro	Val	Thr	Leu	Arg	Trp	Tyr	Leu	Ala	Thr	Gly	Glu				
		50				55					60								
Glu	Ile	Tyr	Asp	Val	Pro	Gly	Ile	Arg	His	Val	His	Pro	Asn	Gly	Thr				
65					70				75					80					
Leu	Gln	Ile	Phe	Pro	Phe	Pro	Pro	Ser	Ser	Phe	Ser	Thr	Leu	Ile	His				
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Asp	Asn	Thr	Tyr	Tyr	Cys	Thr	Ala	Glu	Asn	Pro	Ser	Gly	Lys	Ile	Arg				
		100						105					110						
Ser	Gln	Asp	Val	His	Ile	Lys	Ala	Val	Leu	Arg	Glu	Pro	Tyr	Thr	Val				
		115					120						125						
Arg	Val	Glu	Asp	Gln	Lys	Thr	Met	Arg	Gly	Asn	Val	Ala	Val	Phe	Lys				
		130				135					140								
Cys	Ile	Ile	Pro	Ser	Ser	Val	Glu	Ala	Tyr	Ile	Thr	Val	Val	Ser	Trp				
145					150					155				160					
Glu	Lys	Asp	Thr	Val	Ser	Leu	Val	Ser	Gly	Ser	Arg	Phe	Leu	Ile	Thr				
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Ser	Thr	Gly	Ala	Leu	Tyr	Ile	Lys	Asp	Val	Gln	Asn	Glu	Asp	Gly	Leu				
			180					185					190						
Tyr	Asn	Tyr	Arg	Cys	Ile	Thr	Arg	His	Arg	Tyr	Thr	Gly	Glu	Thr	Arg				
		195				200						205							
Gln	Ser	Asn	Ser	Ala	Arg	Leu	Phe	Val	Ser	Asp	Pro	Ala	Asn	Ser	Ala				

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Pro Ser Ile Leu Asp Gly Phe Asp His Arg Lys Ala Met Ala Gly Gln		
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Arg Val Glu Leu Pro Cys Lys Ala Leu Gly His Pro Glu Pro Asp Tyr		
245	250	255
Arg Trp Leu Lys Asp Asn Met Pro Leu Glu Leu Ser Gly Arg Phe Gln		
260	265	270
Lys Thr Val Thr Gly Leu Leu Ile Glu Asn Ile Arg Pro Ser Asp Ser		
275	280	285
Gly Ser Tyr Val Cys Glu Val Ser Asn Arg Tyr Gly Thr Ala Lys Val		
290	295	300
Ile Gly Arg Leu Tyr Val Lys Gln Pro Leu Lys Ala Thr Ile Ser Pro		
305	310	315 320
Arg Lys Val Lys Ser Ser Val Gly Ser Gln Val Ser Leu Ser Cys Ser		
325	330	335
Val Thr Gly Thr Glu Asp Gln Glu Leu Ser Trp Tyr Arg Asn Gly Glu		
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Ile Leu Asn Pro Gly Lys Asn Val Arg Ile Thr Gly Ile Asn His Glu		
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Asn Leu Ile Met Asp His Met Val Lys Ser Asp Gly Gly Ala Tyr Gln		
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Cys Phe Val Arg Lys Asp Lys Leu Ser Ala Gln Asp Tyr Val Gln Val		
385	390	395 400
Val Leu Glu Asp Gly Thr Pro Lys Ile Ile Ser Ala Phe Ser Glu Lys		
405	410	415
Val Val Ser Pro Ala Glu Pro Val Ser Leu Met Cys Asn Val Lys Gly		
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Thr Pro Leu Pro Thr Ile Thr Trp Thr Leu Asp Asp Asp Pro Ile Leu		
435	440	445
Lys Gly Gly Ser His Arg Ile Ser Gln Met Ile Thr Ser Glu Gly Asn		
450	455	460
Val Val Ser Tyr Leu Asn Ile Ser Ser Ser Gln Val Arg Asp Gly Gly		

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Val Tyr Arg Cys Thr Ala Asn Asn Ser Ala Gly Val Val Leu Tyr Gln			
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Ala Arg Ile Asn Val Arg Gly Pro Ala Ser Ile Arg Pro Met Lys Asn			
	500	505	510
Ile Thr Ala Ile Ala Gly Arg Asp Thr Tyr Ile His Cys Arg Val Ile			
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Gly Tyr Pro Tyr Tyr Ser Ile Lys Trp Tyr Lys Asn Ser Asn Leu Leu			
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Pro Phe Asn His Arg Gln Val Ala Phe Glu Asn Asn Gly Thr Leu Lys			
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Leu Ser Asp Val Gln Lys Glu Val Asp Glu Gly Glu Tyr Thr Cys Asn			
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Val Leu Val Gln Pro Gln Leu Ser Thr Ser Gln Ser Val His Val Thr			
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Val Lys Val Pro Pro Phe Ile Gln Pro Phe Glu Phe Pro Arg Phe Ser			
	595	600	605
Ile Gly Gln Arg Val Phe Ile Pro Cys Val Val Val Ser Gly Asp Leu			
	610	615	620
Pro Ile Thr Ile Thr Trp Gln Lys Asp Gly Arg Pro Ile Pro Gly Ser			
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Leu Gly Val Thr Ile Asp Asn Ile Asp Phe Thr Ser Ser Leu Arg Ile			
	645	650	655
Ser Asn Leu Ser Leu Met His Asn Gly Asn Tyr Thr Cys Ile Ala Arg			
	660	665	670
Asn Glu Ala Ala Ala Val Glu His Gln Ser Gln Leu Ile Val Arg Val			
	675	680	685
Pro Pro Lys Phe Val Val Gln Pro Arg Asp Gln Asp Gly Ile Tyr Gly			
	690	695	700
Lys Ala Val Ile Leu Asn Cys Ser Ala Glu Gly Tyr Pro Val Pro Thr			
	705	710	715
Ile Val Trp Lys Phe Ser Lys Gly Ala Gly Val Pro Gln Phe Gln Pro			

725	730	735
Ile Ala Leu Asn Gly Arg Ile Gln Val Leu Ser Asn Gly Ser Leu Leu		
740	745	750
Ile Lys His Val Val Glu Glu Asp Ser Gly Tyr Tyr Leu Cys Lys Val		
755	760	765
Ser Asn Asp Val Gly Ala Asp Val Ser Lys Ser Met Tyr Leu Thr Val		
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Lys Ile Pro Ala Met Ile Thr Ser Tyr Pro Asn Thr Thr Leu Ala Thr		
785	790	795
Gln Gly Gln Lys Lys Glu Met Ser Cys Thr Ala His Gly Glu Lys Pro		
805	810	815
Ile Ile Val Arg Trp Glu Lys Glu Asp Arg Ile Ile Asn Pro Glu Met		
820	825	830
Ala Arg Tyr Leu Val Ser Thr Lys Glu Val Gly Glu Glu Val Ile Ser		
835	840	845
Thr Leu Gln Ile Leu Pro Thr Val Arg Glu Asp Ser Gly Phe Phe Ser		
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Cys His Ala Ile Asn Ser Tyr Gly Glu Asp Arg Gly Ile Ile Gln Leu		
865	870	875
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885	890	895
Lys Ala Arg Thr Ile Thr Leu Arg Trp Thr Met Gly Phe Asp Gly Asn		
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Ser Pro Ile Thr Gly Tyr Asp Ile Glu Cys Lys Asn Lys Ser Asp Ser		
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Trp Asp Ser Ala Gln Arg Thr Lys Asp Val Ser Pro Gln Leu Asn Ser		
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Ala Thr Ile Ile Asp Ile His Pro Ser Ser Thr Tyr Ser Ile Arg Met		
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Tyr Ala Lys Asn Arg Ile Gly Lys Ser Glu Pro Ser Asn Glu Leu Thr		
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Leu Glu Pro Ile Ser Ser Gln Ser Ile Arg Val Thr Trp Lys Ala Pro		
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Asp Thr Ser Gly Asp Ser Glu Val Tyr Thr Leu Asp Asn Leu Asn Lys		
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Gly Pro Ser Ser Gln Glu Ile Ile Thr Thr Thr Leu Glu Asp Val Pro		
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Ile Ser Ile Ser Trp Ser Thr Leu Ser Lys Glu Ala Leu Asn Gly Ile		
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Leu Gln Gly Phe Arg Val Ile Tyr Trp Ala Asn Leu Met Asp Gly Glu		
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Leu Gly Glu Ile Lys Asn Ile Thr Thr Thr Gln Pro Ser Leu Glu Leu		
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Ser Ala Ser Met Val Phe Val Ser Trp Leu Pro Pro Leu Lys Leu Asn		
1205	1210	1215
Gly Ile Ile Arg Lys Tyr Thr Val Phe Cys Ser His Pro Tyr Pro Thr		
1220	1225	1230
Val Ile Ser Glu Phe Glu Ala Ser Pro Asp Ser Phe Ser Tyr Arg Ile		

1235	1240	1245
Pro Asn Leu Ser Arg Asn Arg Gln Tyr Ser Val Trp Val Val Ala Val		
1250	1255	1260
Thr Ser Ala Gly Arg Gly Asn Ser Ser Glu Ile Ile Thr Val Glu Pro		
265	1270	1275 1280
Leu Ala Lys Ala Pro Ala Arg Ile Leu Thr Phe Ser Gly Thr Val Thr		
1285	1290	1295
Thr Pro Trp Met Lys Asp Ile Val Leu Pro Cys Lys Ala Val Gly Asp		
1300	1305	1310
Pro Ser Pro Ala Val Lys Trp Met Lys Asp Ser Asn Gly Thr Pro Ser		
1315	1320	1325
Leu Val Thr Ile Asp Gly Arg Arg Ser Ile Phe Ser Asn Gly Ser Phe		
1330	1335	1340
Ile Ile Arg Thr Val Lys Ala Glu Asp Ser Gly Tyr Tyr Ser Cys Ile		
345	1350	1355 1360
Ala Asn Asn Asn Trp Gly Ser Asp Glu Ile Ile Leu Asn Leu Gln Val		
1365	1370	1375
Gln Val Pro Pro Asp Gln Pro Arg Leu Thr Val Ser Lys Thr Thr Ser		
1380	1385	1390
Ser Ser Ile Thr Leu Ser Trp Leu Pro Gly Asp Asn Gly Gly Ser Ser		
1395	1400	1405
Ile Arg Gly Tyr Ile Leu Gln Tyr Ser Glu Asp Asn Ser Glu Gln Trp		
1410	1415	1420
Gly Ser Phe Pro Ile Ser Pro Ser Glu Arg Ser Tyr Arg Leu Glu Asn		
425	1430	1435 1440
Leu Lys Cys Gly Thr Trp Tyr Lys Phe Thr Leu Thr Ala Gln Asn Gly		
1445	1450	1455
Val Gly Pro Gly Arg Ile Ser Glu Ile Ile Glu Ala Lys Thr Leu Gly		
1460	1465	1470
Lys Glu Pro Gln Phe Ser Lys Glu Gln Glu Leu Phe Ala Ser Ile Asn		
1475	1480	1485
Thr Thr Arg Val Arg Leu Asn Leu Ile Gly Trp Asn Asp Gly Gly Cys		

1490

1495

1500

Pro Ile Thr Ser Phe Thr Leu Glu Tyr Arg Pro Phe Gly Thr Thr Val
505 1510 1515 1520

Trp Thr Thr Ala Gln Arg Thr Ser Leu Ser Lys Ser Tyr Ile Leu Tyr
1525 1530 1535

Asp Leu Gln Glu Ala Thr Trp Tyr Glu Leu Gln Met Arg Val Cys Asn
1540 1545 1550

Ser Ala Gly Cys Ala Glu Lys Gln Ala Lys Glu Ala Ala Arg Cys Lys
1555 1560 1565

Glu Phe Ser
1570